भारतीय मानक

Indian Standard

IS 4109 : 2023

कड़ाही — विशिष्टि

(पहला पुनरीक्षण)

Kadahi — Specification

(First Revision)

ICS 67.250: 97.040

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June 2023 **Price Group 5**

Utensils, Cutlery Domestic Hardware Sectional Committee, MED 33

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Utensils, Cutlery Domestic Hardware Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1967 and reprinted in 1985. In this revision, the following major changes have been incorporated:

a) Material grades have been revised;
b) Material of rivet has been specified;
c) Material of handle has been specified; and
d) Marking clause has been modified.

The relevant SI units and corresponding conversion factors are given below for guidance:

$$\begin{aligned} 1\ \text{kgf/cm}^2 &= 98.066\,5\ \text{kPa (kilopascal)} = 10\ \text{m of water column (WC)} \\ &= 0.098\,066\,5\ \text{MPa (megapascal)} \\ &= 0.980\,665\ \text{bar} \\ 1\ \text{Pa} &= 1\ \text{N/m}^2 \end{aligned}$$

The composition of the committee responsible for the formulation of this standard is listed in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

KADAHI — SPECIFICATION

(First Revision)

1 SCOPE

This standard covers the requirements for the materials, shapes, dimensions, and performance of *kadahis* used for domestic purpose.

2 REFERENCES

The Indian Standard listed in below contain provisions which, through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

IS No.	*Title*
210 : 2009	Grey iron castings — Specification (*first revision*)
1079 : 2017	Hot rolled carbon steel sheet, plate and strip — Specification (*seventh revision*)
1148 : 2009	Steel rivet bars (medium and high tensile) for structural purposes
2062 : 2011	Hot rolled medium and high tensile structural steel — Specification (*seventh revision*)

3 MATERIAL

3.1 The *kadahis* shall be made from any of the materials as given in Table 1.

Table 1 Material Requirement
(*Clause* 3.1)

Sl No. (1)	Component (2)	Material (3)	Grade (4)	Applicable Standard (5)
i)	Kadahi Body	Hot rolled carbon steel sheet	ISH270D ISH270E	IS 1079
		Grey cast iron	All grades	IS 210
ii)	Handle	Hot rolled medium and high tensile structural steel	All grades	IS 2062
iii)	Rivet	Steel rivet bars	-	IS 1148

4 SHAPES AND DIMENSIONS

4.1 The shapes and dimensions shall be as given in Fig.1 and 2 and Tables 2 to 4. Any other shape can be decide as per agreement to between the manufacturer and the purchaser.

4.2 The size of the *kadahi* shall be in terms of inner diameter.

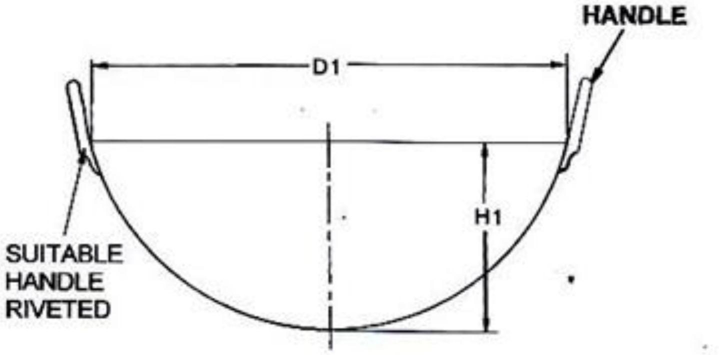

FIG. 1 A) ROUND TYPE KADAHI

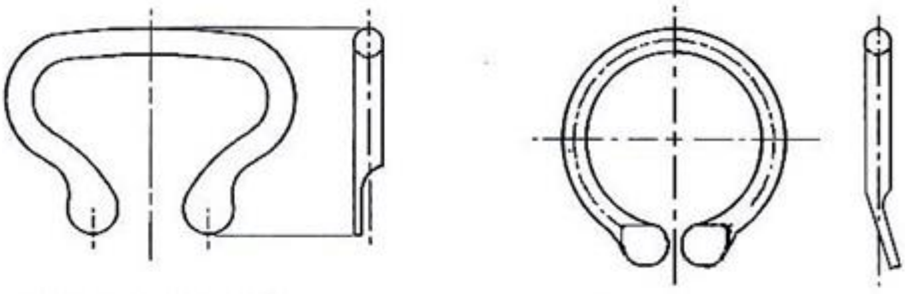

FIG. 1 B) ENLARGED VIEW OF TYPICAL HANDLES USED WITH KADAHI

FIG. 1 ROUND BOTTOM KADAHI

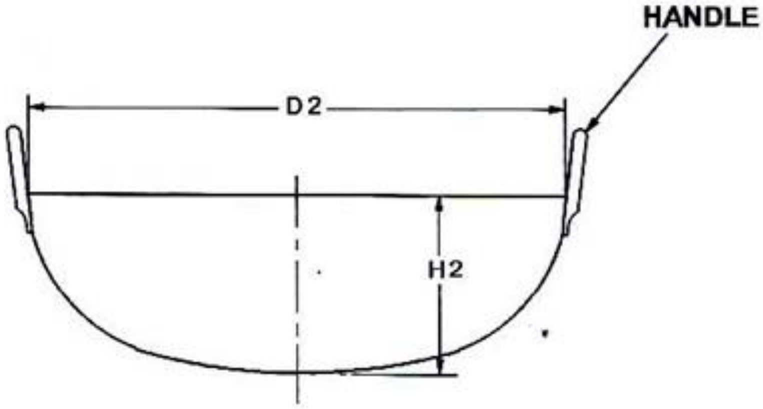

FIG. 2 A) BOWL SHAPE KADAHI

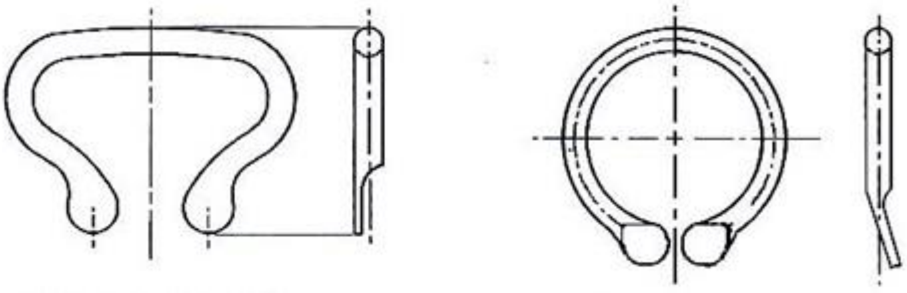

FIG. 2 B) ENLARGED VIEW OF TYPICAL HANDLES USED WITH KADAHI

FIG. 2 BOWL SHAPE KADAHI

5 MANUFACTURE AND WORKMANSHIP

5.1 *Kadahis*, if made from mild steel sheet, shall be pressed or forged to the required shape and size and handles of suitable size shall be riveted or welded. Metal to metal welding if done, the weld shall be free from welding defects. The rivet heads shall be well formed. Rivets shall be tightly drawn and well-shaped. If the rivet holes are punched out, all frayed edges shall be removed.

5.2 *Kadahis,* if made from cast iron shall be cast to the given shape and size. These shall be free from blow holes, high spots, cracks, splits and other casting defects.

Table 2 Dimensions of Round Shape Cast Iron Kadahis
(*Clause* 4.1 *and* 6.1.1)

Sl No.	Nominal Diameter at Top D_1 mm	Nominal Overall Height H_1 mm	Thickness at Bottom* *Min* mm	Dia of Rod for Handle *Min* mm	Pull Test Load kgf
(1)	(2)	(3)	(4)	(5)	(6)
i)	224	86	3	8	2
ii)	262	97	3	8	2.5
iii)	280	100	3	8	3
iv)	295	108	3.5	8	4
v)	316	116	3.5	8	5
vi)	333	119	4	8	6
vii)	356	128	4	8	9
viii)	410	155	5	8	11
ix)	435	159	5.5	12	13
x)	464	168	6	12	15
xi)	575	217	7	12	30
xii)	625	241	8	16	40
xiii)	686	258	9	16	50
xiv)	724	270	10	16	60

*A progressive reduction up to 30 percent is permitted at the rim.

Table 3 Dimensions of Bowl Shape Cast Iron Kadahis
(*Clause* 4.1 *and* 6.1.1)

Sl No.	Nominal Diameter at Top D_1 mm	Nominal Overall Height H_1 Mm	Thickness at Bottom* *Min* Mm	Dia of Rod for Handle *Min* mm	Pull Test Load kgf
(1)	(2)	(3)	(4)	(5)	(6)
i)	228	73	3	8	1.5
ii)	264	79	3	8	2
iii)	284	85	3	8	2.5
iv)	298	89	3.5	8	3.5
v)	320	98	3.5	8	4
vi)	336	106	4	8	5
vii)	358	112	4	8	6
viii)	384	117	4.5	8	7
ix)	410	122	5	12	8
x)	435	124	5.5	12	9
xi)	460	130	6	12	10

*A progressive reduction up to 30 percent is permitted at the rim.

Table 4 Dimensions of Round and Bowl Shape Mild Steel Kadahis
(*Clauses* 4.1 *and* 6.1.1)

Sl No.	Diameter at Top D_1 or D_2 mm	Overall Height Round Shape H_1 Mm	Overall Height Bowl Shape H_2 Mm	Thickness at Bottom* *Min* mm	Dia of Rod for Handle *Min* mm	Pull Test Load kgf
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	225	75	37	2.0	8	3
ii)	300	75	37	2	8	6
iii)	300	102	-	3.15	8	6
iv)	350	85	50	2	8	9
v)	400	85	50	2.5	12	12
vi)	450	100	62	2.5	12	15
vii)	500	100	62	2.5	112	20
viii)	550	112	75	3.15	16	25
ix)	600	125	75	3.15	16	30
x)	760	305	-	3.80	16	120

*A progressive reduction up to 20 percent is permitted at the rim.

5.3 Handles

The details of typical handles are as given in Table 5.

Table 5 Handle Details
(*Clause* 5.3)

Sl No.	**Nominal Diameter at the Top**	**Dimension of Handles**				
		Diameter, in mm	Minimum Height	Minimum width	Minimum gap between rivet holes/weld	Riveted/Welded
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	≥ 200 and upto 400	8	65	76	40	Welded
ii)	> 400 and upto 800	16	160	150	8	Welded
iii)	≥ 200 and upto 400	8	65	76	40	Rivet
iv)	> 400 and upto 800	16	160	150	30	Rivet

6 TEST

6.1 Pull Test

The *kadahi* shall not show any sign of damage and looseness of the handle, when a load is applied in a manner described in **6.1.1**.

6.1.1 The *kadahi* shall be placed 'unturned' on a suitable table such that both the handles protrude outside the table. A dead load as specified in Table 2 to 4 shall be applied for atleast 30 minutes on each handle by means of a cord or chain in such a way that the *kadahi* is least disturbed.

6.2 Leakage Test

The *kadahi* shall be filled with water to the brim. Water shall be boiled for 15 minutes (heat source could be LPG stove). The *kadahi* shall not show any sign of leakage from rivets/weld portion during the test.

7 MARKING

7.1 Each *kadahi* shall be suitable marked on the outside with the following information:

a) Material grade of kadahi body;
b) Size (diameter and height of kadahi body) and thickness at the bottom;
c) Manufacturer's name; and
d) Registered trade mark or identification mark.

7.1.1 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

8 PACKING

Each *kadahi* shall be suitable packaged to avoid any damage during transit. The packaging shall be eco-friendly.

ANNEX A
(*Foreword*)

COMMITTEE COMPOSITION

Utensils, Cutlery Domestic Hardware Sectional Committee, Med 33

Organisation	*Representative(s)*
In Personal Capacity (*A-504, K.G Chandra Vista, OMR, Opposite to Satyabhama University, Sholinganallur, Chennai*)	Shri G. Shanmuganathan (***Chairperson***)
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Central Public Works Department, New Delhi	Shri Surinder Kumar Shri R. K. Saraswat (*Alternate*)
Consumer Voice, New Delhi	Shri B.K. Mukhopadhyay Shri M. A. U. Khan (*Alternate*)
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Federation of Hardware Manufacurers and Traders Welfare Association, Gurugram	Shri Takshay Bansal Shri Naveen Handa (*Alternate* I) Shri Vikas narwal (*Alternate* II)
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Hamilton Housewares Private Limited, Mumbai	Shri Sanjay Moreshwar Mhatre Shri Induprakash Singh (*Alternate*) Shri Vikas Surendra Kumar Bhatia (*Young Professional*)
Hawkins Cookers Limited, Thane	Shri B. S. Sethi Shri Rahul Pathak (*Alternate*) Shri Ravinder Mali (*Young Professional*)

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Jindal Stainless Limited, Hisar	SHRI BISWABASU ROY CHOWDHURY SHRIMATI NISHA GOEL (*Alternate*)
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Pritam International, Baddi	SHRI RAHUL KHERA SHRI ROHIT KHERA (*Alternate*)
Royal Kitchen Appliances Private Limited,Sonepat	SHRI SURESH AGARWAL
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TTK Prestige Ltd , Bengaluru	SHRI ANTO VIMAL ANAND SHRI RAJASEKARANS. (*Alternate*)
In Personal Capacity (*179, Sri Sai, 13th Cross, Ananthnagar Phase 1, Electronic City Post, Bengaluru*)	SHRI B. VISWANATH SHENOY
BIS Directorate General	SHRI RAJNEESH KHOSLA, SCIENTIST 'F'/SENIOR DIRECTOR AND HEAD (MECHANICAL ENGINEERING DEPARTMENT) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI CHANDAN GUPTA
SCIENTIST 'D'/JOINT DIRECTOR
(MECHANICAL ENGINEERING DEPARTMENT), BIS

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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